IOWA HIGHWAY RESEARCH BOARD (IHRB)
Minutes of September 30, 2016

Regular Board Members Present

A. Abu-Hawash
K. Jones
M. Kennerly
T. Nicholson
S. Okerlund
W. Weiss
R. Stutt
D. Miller
K. Mayberry
L. Roehl
M. Parizek

Alternate Board Members Present

F. W. Klaiber
J. Thorius
T. Kinney

Members with No Representation

P. Assman
R. Knoche
P. Hanley

Secretary – V. Goetz

Visitors

Tammy Bailey	Iowa Department of Transportation
Francis Todey	Iowa Department of Transportation
Brian Worrel	Iowa Department of Transportation
Mike Nop	Iowa Department of Transportation
Scott Neubauer	Iowa Department of Transportation
LaDon Jones	Iowa State University
Jon Nania	United States Geological Survey
Brent Phares	United States Geological Survey
David Eash	United States Geological Survey
Padraic O'Shea	United States Geological Survey

The meeting was held at the Iowa Department of Transportation Ames Complex, Materials East/West Conference Room, on Friday, September 30, 2016. The meeting was called to order at 9:00 a.m. by Vice-Chairperson Ahmad Abu-Hawash with an initial number of 11 voting members/alternates at the table.

1. Agenda review/modification

2. Motion to approve Minutes from the July 29, 2016 meeting

Motion to Approve by K. Mayberry; 2nd M. Kennerly

Motion carried with 11 Aye, 0 Nay, 0 Abstaining.

3. RFP:

a) IHRB-16-05 – Optimized Joint Spacing for Concrete Overlays With and Without Structural Fiber reinforcement.

The Board originally held this RFP and requested the Technical Advisory Committee for the current IHRB project **Concrete Overlay Performance on Iowa's Roadways (TR-698)** review the RFP information. The TAC recommends that the proposed tasks outlined in this RFP be added to the current project and approve an additional funding amount of $90,000.

Motion to Approve by K. Jones; 2nd L. Roehl
Motion carried with 11 Aye, 0 Nay, 0 Abstaining.

b) IHRB -16-15 – Increase Service Life at Bridge Ends through Improved Abutment and Approach Slab Details and Water Management Practices.

Motion to Approve by T. Nicholson; 2nd W. Weiss
Motion carried with 11 Aye, 0 Nay, 0 Abstaining.

*****Chairperson Sarah Okerlund joined the meeting.**

4. Continuation Proposal: HR-140, "Collection and Analysis of Streamflow Data", Jon Nania, U.S. Geological Survey, ($54,900)

BACKGROUND

Need to continue collection of streamflow data for Iowa. The efficient and safe design of bridges and culverts depends to a considerable extent on accurate hydrologic information. The Office of Bridges and Structures obtains the necessary hydrologic information from several sources; however, much of this information is obtained from the USGS. The cooperative program HR-140 is subject to annual renewal and is supported with funds from both the USGS and IHRB.

In the design of a bridge or culvert, the engineer must provide adequate capacity for streamflow under or through the structure, as well as providing for vehicular traffic across it. In addition, attention must be given to what affect the structure, including its approach embankments, will have on the existing natural and man-made drainage facilities in the area. To satisfactorily resolve these matters, the designer needs reliable information about the amount of water flowing in the stream and, most important, about the magnitude and frequency of floods.

Project HR-140 is subject to annual review and renewal. The activities included in the project may be discontinued or changed at that time. USGS personnel are equipped for and are experienced specialists in collecting, compiling, and publishing streamflow information. The USGS Cooperative Matching Funds and GWSIP collectively fund 40 percent of project HR-140.

OBJECTIVES

The objectives of this proposed research are to:

(1) Operate, maintain, and publish streamflow data for 21 continuous-record streamgages located throughout the State
(2) Operate, maintain, and publish high-flow data for 80 partial-record (crest-stage) streamgages located throughout the State.
(3) Collect and publish water-surface profiles, and storm and flood description information, for significant flood events of interest to the IDOT.

DISCUSSION

Q. We discussed replacing the gauges twice a year?
A. We have twenty seven outfitted now and have in the budget to replace 2 additional gauges. If funds allow, additional gauges will be upgraded.
Q. We come back every year to fund this project, from a contract management perspective, if this is a valuable Research project, could we fund multiple years, but touch base every year?
A. This is possible with USGS

IHRB recommends to award funding for 3 years.

Motion to Approve by W. Weiss; 2nd K. Jones
Motion carried with 12 Aye, 0 Nay, 0 Abstaining.

5. **Final Report:** TR-655**,** "Updating the Iowa Culvert Hydraulics and Iowa Bridge Backwater Software", LaDon Jones, Digital Control, ($54,900).

BACKGROUND

The Iowa Highway Research Board has previously funded the development of software used for the hydraulic design of culverts (Iowa Culvert Hydraulics: TR-447, TR-504) and estimation of the backwater due to bridges (Iowa Bridge Hydraulics Software: TR-476, TR-564). The first version of the culvert software was released in 2001 and the first version of the bridge software was released in 2003. The software is used by the Iowa Department of Transportation, Iowa County Engineering Offices and consultants.

OBJECTIVES

Both software programs were originally written in Visual Basic 6.0. Visual Basic 6.0 is no longer supported by Microsoft and the language is no longer being updated nor service packs released to fix known problems. Although the current programs will run under Windows 7 there are sometimes problems with getting the programs installed and these problems may increase in the future. Future updates to the visual basic 6.0 code base for the software would not be able to take advantage of improvements in the Microsoft programming environment.
Both programs, the Iowa DOT Culvert Program and Iowa DOT Bridge Backwater Program, have been converted from visual basic 6.0 to Visual Basic.NET. Although both are called visual basic, Visual Basic.NET uses the .NET framework and other than some syntax similarities is really a completely different programming system than visual basic 6.0. The .NET framework is built into Windows 7 and newer and the software runs without problems on Windows 7, Windows 8 and Windows 10. Both of the new programs are designated as Version 3. The Version 3 software will also be easier to update and maintain in the future.

Both version 3 programs are backwards compatible with project files created with previous versions. The interface for both programs is similar to previous versions. Users of previous versions will find the new versions familiar and easy to use.
In version 3 programs, printed output can now be previewed, and sent to a pdf file if a non-hard copy output is desired.

DISCUSSION
Q. Is this used on all streams and rivers of all sizes or is there a limitation?
A. There is a chart that shows the limitations, this is more for the rural areas with low damage potential. The Bridge back water calculation are based on more simplified assumptions.
Q. Is it possible to give this software to send a notification to the ICEA Service Bureau to make aware to the County Engineering Communities?
A. Yes, it will be posted on our website, instead of posting on the DOT server we are putting everything onto Iowa Publications Online. Steve Devries can send out an announcement with a link as to where the software will be. Vanessa will notify Steve Devries.

Motion to Approve by A. Abu-Hawash; 2nd D. Miller
Motion carried with 12 Aye, 0 Nay, 0 Abstaining.

6. FY 2017 New Topics

The Research department has changed the process of reviewing New Research Topics. As the new topics were submitted office staff reviewed each project for a fit to our strategic goals. If a project did not fit with the State Planning and Research or the Iowa Research Board funding missions it was not considered. We were asked by our Management team to include feedback from DOT management, so each of the divisions had a chance to review the projects that were submitted and were assigned by each division's priority. Projects that were received with a priority of two or less were removed from consideration. The Federal Side of the Research Program has been finalized and approved by FHWA. Next year we will have the ICEA executive board provide additional feedback so then will have a chance to look at projects that were not submitted through the County Research Focus Group.

Last week board secretary Goetz sent the list to the members of the board asking them to submit their vote online, priority being one and ten being the lowest. Projects were assigned points based on the ranking.

Before the motion for approval, the board discussed any changes to projects for consideration.

The following ranked projects will be approved and further developed for an RFP.

	FY17 Program	Topic Number	Title	Amount
1	IHRB-17-01	17032	Next Generation Life Cycle Cost Analysis Tool For Bridges In Iowa	$90,000.00
2	IHRB-17-02	17021	Improving Concrete Patching Practices In Iowa Roadways	$150,000.00

3	IHRB-17-03	17080	Iowa Transportation Program Management System (TPMS) Modernization	$395,000.00
4	IHRB-17-04	17099	Cost Benefit Analysis Of Milled In Pavement Markings	$100,000.00
5	IHRB-17-05	17026	Role Of Coarse Aggregate Porosity On Chloride Intrusion In HPC Bridge Deck	$150,000.00
6	IHRB-17-06	17081	Granular Roads Asset Management System	$250,000.00
7	IHRB-17-07	17008	Selection Methodology For Safety Improvements At Highway Railroad Crossings	$90,000.00
8	IHRB-17-08	17028	Limitations For Semiintegral Abutment Bridges	$125,000.00
9	IHRB-17-09	17038	Shrinkage And Temperature Forces In Frame Piers	$150,000.00

Motion to Approve by K. Mayberry; 2nd R. Stutt
Motion carried with 12 Aye, 0 Nay, 0 Abstaining.

7. Every Day counts Round 4

The next round has been published by FHWA. We have representatives of the STIC and the State of Iowa going to the Summit happening on October 25 & 26, 2016 in Minnesota. The people attending from Iowa are Tammy Nicholson (DOT), Mike Kennerly (DOT), Paul Hanley (UofIowa), Lee Bjerke (Winneshiek County), Wade Weiss (Greene County) and Ron Knoche (IA City) are representing the STIC/Iowa Highway Research Board. Also, Deaan Newel (DOT) form environmental office, Tim Crouch and Michael Pawlovich from DOT Traffic & Safety, Donna Buckwald from DOT Local Systems, Keith Knapp (LTAP) along with Vanessa Goetz (DOT).

We will learn more about the initiatives from everyday counts round 4. At the end of the meeting there is a caucus where we are representing the State of Iowa and will put together an implementation plan to identify which of these innovations we would like to pursue.

8. New Business

1) Danny Waid, Hamilton County Engineer has accepted the position of Secondary Road Research Engineer with the ICEA Service Bureau. He will begin working on October 17.

2) Innovative Projects Pilot Program: The Iowa Research Board contributed $80,000 dollars' worth of funds along with $20,000 dollars of State Research Funds. The Midwest Transportation Center matched $80,000 in funding to create the pilot for innovative projects for 2016. The call for proposals closed a few weeks ago, and there were several projects submitted. Last week the review committee met at InTrans to review the proposals. We have narrowed it down to eight and will go through another round of review by reaching out to the technical experts within each category. We will award 4 projects with $45,000 each.

9. Adjourn

Motion to Approve by D. Miller; 2nd A. Abu-Hawash
Motion carried with 12 Aye, 0 Nay, 0 Abstaining.

The next meeting of the Iowa Highway Research Board will be held Friday, October 28, 2016 in the East/West Materials Conference Room at the Iowa DOT. The meeting will begin promptly at 9 a.m.

Vanessa Goetz, IHRB Secretary